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UNITED STATES DEPARTMENT OF AGRICULTURE  
Bureau of Agricultural Engineering

## MONTHLY NEWS LETTER

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Geo. R. Boyd is on an extensive field trip in the West and Middle West. He visited points in Texas and New Mexico in connection with the Rio Grande joint investigation of the National Resources Committee. He will also inspect the work of the Bureau in Arizona, California, Oregon and Utah.

During April the C.C.C. Drainage Camps of the Central District completed 5,235,315 square yards of clearing; 1,371,078 cubic yards of hand and machine excavation, and embankment work, and 48,876 lineal feet of tile reconditioning. This brings the accomplishment of the Camps for the three principal classes of work being performed to a total of 67,000,000 square yards clearing; 4.6 million cubic yards excavation and embankment, and 31 miles of tile reconditioning. Sixty draglines, including 12 Government machines, were operated in the various camps during the month.

The monetary value of cooperation furnished by the local people during April amounted to \$95,000, a 50 percent increase over the month of March, and four times the amount furnished during February.

L. A. Jones visited camps in Kentucky and Southeast Missouri, as well as the District Office, during his recent trip through the central west. Mr. Fred Morrell, Chief of the Forest Service E.C.W. operations with John G. Sutton, District Engineer, inspected Camps in northern Ohio and Indiana on April 18 and 19. Mr. Morrell expressed himself as well pleased with the program and operation of the Drainage Camps.

The District Office has been advised that the purchase of 24 additional draglines, to bring the total number of Government machines to one per camp, has been approved.

A three day meeting of inspectors was held at the district office on April 27, 28 and 29. This was the second meeting of the kind held since the establishment of the camps, and was attended by all four district inspectors, Messrs. Burnett, Edwards, Jacoby and Shafer. The meeting proved to be interesting and helpful, and the work program and problems both general and for each area covered by the Inspectors was discussed.

Work on the Rio Grande joint investigation by the National Resources Committee, to which several members of the Division of Irrigation have been assigned, progressed rapidly during the month. A conference of Messrs. Harlowe Stafford, Fred C. Scobey, Paul A. Ewing, Harry F. Blaney, and Carl Rohwer, was held in Santa Fe, New Mexico, April 5 to 8, for the purpose of formulating plans for carrying on the work assigned to the Division. Mr. Rohwer made a reconnaissance of the San Luis Valley. A site was chosen for installing a set of tanks on the Rio Grande to determine the evaporation and transpiration losses from tules, salt grass, and native hay. A similar installation is proposed for the hay meadows south of Monte Vista.

Dean W. Bloodgood also made a trip from Pomona, Calif., to State College, New Mexico, his former headquarters, where he assisted in selecting locations for experimental work, making contracts with interested parties, and locating data previously compiled that might be useful in connection with the investigations. Mr. Bloodgood also visited Albuquerque, Santa Fe, and El Paso, for the purpose of consulting with those engaged or cooperating in the study.

Following a field investigation of the Turnbull Slough Project of the Biological Survey, near Cheney, Wash., during March, L. T. Jessup submitted a report of his findings. The project as now outlined contains over 13,000 acres, covered mostly with scab rock, with a poor grade of pine, and containing a large number of sloughs and pot holes due to glacial action. The problem consisted of determining works necessary to collect and retain water, if any, on the area, and to what elevations water could be held without damage to roads and private property.

On April 15 Mr. Jessup left Yakima, Wash., for Berkeley, en route to Pecos, Texas, where he made an examination and reconnaissance of seven irrigation districts with respect to drainage needs. This investigation was made upon request of irrigation districts in Pecos Valley, Texas. In company with Harry G. Nickle, Mr. Jessup visited each of the 7 districts to be supplied with water from the Red Bluff reservoir now being completed, and consulted with various officials of the local districts as well as of the master districts and with various farmers and other interested persons.

In connection with the snow cover measurement and irrigation water supply forecasting project, J. C. Marr, leader of the project, spent the greater part of the month in reviewing and computing snow cover measurements from the various snow courses, and estimating therefrom the probable irrigation water supply for the coming season. In order to bring together interested officials to discuss and judge these data, two meetings were held, one at Burley, Idaho, and one at Ontario, Oregon. The former meeting was attended by most of the State watermasters and irrigation project managers of Snake River Basin eastward from King Hill, also by the Assistant State Reclamation Commissioner of Idaho. At the Ontario meeting, in addition to Messrs. Marr, Lewis, and Work of the Division of Irrigation, there were in attendance representatives of the Bureau of Reclamation, the Eastern Oregon Power and Light Co., and the Oregon State Engineer's office, also State watermasters. Results of snow cover measurements of March 31 on the Colorado and Wyoming snow courses were compiled by Messrs. Parshall and Rohwer, and reports prepared for each State. About 700 copies of each were mailed to cooperators and interested parties. The annual snow surveys over almost the entire Utah cooperative network were completed March 31. Records were tabulated by George D. Clyde and a report prepared.

The Utah Experiment Station, in cooperation with the State Engineer, issued the annual water supply forecast of April 15. As one means of making public the results of our snow cover measurements and forecasts of irrigation water supply, arrangements were made with the National Broadcasting Co. through its Western Network, to give this information at intervals during the spring of each year. The broadcasts over the network through the San Francisco studio give a resume of conditions in the arid region as a whole and in addition specific information for California. In most of the States associated with the Western Network, arrangements were made through the State Extension Service to broadcast detailed data for each of the States.

This plan has been carried out successfully during the past spring and much interest was evidenced in these broadcasts. The official record of this work is to be published by the State offices of the Weather Bureau.

A progress report on work conducted by the Bureau in cooperation with the Bureau of Plant Industry at the Scottsbluff, Nebr., experiment station, was submitted by Leslie Bowen.

A detailed report of Utah Lake and Jordan River cooperative irrigation studies conducted from May 1, 1934, to March 1, 1936, was completed by O. W. Israelsen. In addition to text matter, the report includes a master map of lands in Salt Lake County on which Utah Lake and Jordan River water is used for irrigation; also detailed tables concerning irrigated areas, water supplies, and water exchange agreements.

R. B. Gray attended the sessions of the second Farm Chemurgic council meeting at Dearborn, Mich., May 12 to 14, inclusive. Papers were presented and discussed by eminent scientists, financiers, engineers, and others, picturing how various agricultural products could be converted into industrial uses to the advantage of the farmer. Such subjects as the use of power alcohol made from artichokes, corn, etc., tung oil from the tung tree now growing in Mississippi in large numbers, plastics and oils from soybeans, paper pulp from slash pine, etc. were featured. Some 600 persons were in attendance. A visit was made to the Edison Museum, Greenfield Village, and a preview of the opening of the Ford Rotunda housing a mammoth mural, theater, and Ford exhibit.

Mr. Gray spent May 15 at Toledo conferring on matters pertaining to pest control and returned to Washington on May 16.

In connection with the cotton production project plots were prepared in April on one of the McQueen Farming Co. units near Prattville, Ala. to determine the most effective of several methods of turning under vetch. Moldboard, cylinder and multiple disk plows were used at several depths and speeds. Marked differences were noted in the completeness of coverage and the locations of the vetch in the turned soil. These plots will be bedded, planted, fertilized, and cultivated uniformly by The Farming Company and yield records will be obtained this fall. This study will give leads as to the most economical methods of turning this type of debris both from the standpoint of the cost of doing the job and the returns obtained. Due to the mounting importance of this problem, two manufacturers of farm machinery have had factory representatives here observing these tests and the coverage problem in general. It has been stated by many farmers that they are planting all the winter legumes they can turn with their available equipment but they would double their acreage if they were sure of being able to get them under.

At this season an extensive series of observations are being made on the soil structure variations of the cotton production plots at Prattville, now in their fifth year of operation. About 500 samples were taken with the improved soil sampling tube. These samples will furnish a definite basis of analysis of the soil structure induced by tillage operations. The plots are being sampled at two-inch horizons to a depth of 8 inches and in some instances to 12 inches. Marked variations have been noted in the various plots. High production plots have a combined fine and coarse aggregation to a depth of 7 or 8 inches. A plot having an open structure shows an appreciable amount of oxidation as compared with those having a more homogeneous structure.

The field operations on the fertilizer machinery project included the planting of cotton in Mississippi, tobacco in South Carolina, peas in New York, and sugar beets in Ohio and Michigan by Messrs. Cumings, Redit, and Brockseker. Placement of fertilizer in short bands at the hill is included in several experiments this year. Concentration of the fertilizer in a small space near the seed or plant has shown possibilities of increasing efficiency because all of the fertilizer is readily reached by the plant and reactions in the soil making plant food unavailable are reduced through less contact of the fertilizer with the soil. Fertilizer and seed were deposited in hills 12 inches apart for sugar beets under normal horse-drawn machine travel. Should such a method prove to be advantageous unusually fast valve action would be required for modern tractor operations.

From May 1 to 4, C. K. Shedd of the corn production machinery project with headquarters at Ames, Iowa, made a trip to Woodbine, Iowa and Lincoln, Nebraska in connection with investigation of use of the basin lister for growing corn. At Woodbine, Iowa, a farmer, Frank Soukup, built a single row basin lister, patterned after the one developed at Ames, and used it in planting his 1935 crop. He reports beneficial results in conserving moisture and reducing soil washing. At Lincoln, arrangements were made with Professors Brackett and Smith of the Agricultural Engineering Department of the University for experimental work with basin lister on a farm near Lincoln. A machine which had been built at Ames was loaned to them for this work. A good deal of interest in this method of preparing the soil and planting row crops is reported. Two machinery manufacturers have experimental machines in the field this spring.

Field tests with the vapor method of spraying insecticides and fungicides are being made by O. K. Hedden of the Toledo Office, in cooperation with the Ohio Experiment Station. This work is being carried on near Wooster, Barnesville, and Sandusky, Ohio.

R. M. Merrill conferred with the Homestead Valve Co., at Coraopolis, Pa. and Dr. Nixon of Pennsylvania State College on matters relating to vapor spraying equipment. He also visited Frank Irons at Moorestown, N.J. and the Washington office to discuss pest control projects.

A.H. Glaves of the Toledo office conferred with Thayer Cleaver at Urbana, Ill. regarding experimental attachment work.

Tentative design of a hose coupling for use with single lengths of hose at high pressures has been made by E. M. Dieffenbach. Advantages claimed for the new coupling include: Strength, large passage for liquid, and low cost.

A conference to complete plans for the procedure on the Bankhead-Jones grain storage project was held in Chicago on May 4 and 5 in the Federal Grain Supervision offices. A.D. Edgar, C. F. Kelly, Thayer Cleaver and Wallace Ashby represented the Bureau of Agricultural Engineering. Prof. F.C. Fenton represented the Kansas Experiment Station. Prof. E. W. Lehmann, Dr. H.C.M. Case and Dr. O. T. Bonnett represented the Illinois Experiment Station and Prof. H. F. McColly represented the North Dakota Agricultural Experiment Station. R. T. Miles, W. B. Combs and F. C. Heiss and others from the Chicago Grain Supervision office attended.

After this conference Mr. Edgar who has been stationed at Presque Isle Me. went to Manhattan, Kans., and later to Hays to be in charge of the work at the Fort Hays Experiment Station, and Mr. Kelly went to Fargo, N. Dak. to take up his duties in connection with the experimental work on grain storage to be carried on at that point.